

NAVAL MEDICAL RESEARCH AND DEVELOPMENT NEWS

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Navy R&D Leadership Sign World Health Day Proclamation

Story by Mikelle D. Smith, Naval Medical Research Center Public Affairs



Deputy Chief, M2, Navy Medicine Research and Development Rear Admiral Bruce Doll speaks during the World Health Day 2014 commemoration ceremony at the National Museum of Health and Medicine. (Photo by Mikelle D. Smith, Naval Medical Research Center Public Affairs)

SILVER SPRING, Md. – Deputy Chief, M2, Navy Medicine Research and Development Rear Admiral Bruce Doll along with Naval Medical Research Center Commanding Officer Capt. John Sanders, attended a World Healthy Day 2014 commemoration ceremony at the National Museum of Health and Medicine (NMHM), April 7.

According to the World Health Organization (WHO) web site, the theme for this year's World Health Day is vector borne-diseases: "Small Bite, Big Threat." Vector-borne diseases, such as malaria and dengue, affect a variety of populations,

predominantly in areas where there is a shortage of access to acceptable housing, safe drinking water and sanitation. In many cases individuals that are malnourished and those with weakened immunities can become quite susceptible.

During the ceremony Dr. Richard Robbins of the Armed Services Pest Management Board read the proclamation which recognized NMRC for work in the overseas labs in Egypt, Ghana, Peru, Singapore and Cambodia as it relates to continued dedication to identify and mitigate infectious disease threats. This

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NMRC Commanding Officer's Message

Each month as I read the articles in this newsletter, I am very impressed by the productivity and accomplishments of our researchers throughout the Navy Medicine R&D enterprise. These accomplishments are a testimony to their scientific creativity and hard work. They are also a testament to the extremely productive collaborations and partnerships our researchers and laboratories have fostered. There are too many key collaborations to list them all but let me highlight a few to provide a glimpse of the diversity and importance of these relationships. The Armed Forces Health Surveillance Center is our most important partner in executing our biosurveillance activities. They provide essential program management and funding to five of our eight commands, and in return, we provide subject matter experts for committees and highly productive research and surveillance platforms. Of course that partnership extends through our OCONUS commands to key partnerships with Ministries of Defense, Ministries of Health, and NGO's around the world. We have similarly productive relationships with other program sponsors such as the Military Infectious Disease Research Program, the Defense Threat Reduction Agency, and the Defense Health Program. The OCONUS commands have been leaders in the "whole of government" philosophy directed by the White House and have integrated their activities in Global Health Security with CDC, USAID, and the Department of State. Additionally, we provide significant support to the WHO with NAMRU-3 serving as their regional reference center in the Middle East and Cmdr. David Brett-Major detailed to support their Global Preparedness, Surveillance, and Response Operations. Of course, there are many important relationships with university partners, such as between NAMRU-Dayton and Wright State University on aerospace medicine, NMRC and USU on surgery and critical research, and NAMRU-6 and UC-Davis on dengue research. Our partnerships with industry are critical to successful product development and have been very productive. For example, NMRC works closely with Sanaria, who recently received the 2014 Vaccine Industry Excellence Award for the "Best Prophylactic Vaccine" on the development of malaria vaccine that can be used to protect our deployed troops. It would be impossible for us to achieve our mission as a research enterprise without these strong partnerships.



NMRC Commanding Officer sends,
John. W. Sanders III, CAPT, MC, USN

NMRC-Asia Commanding Officer's Message



As we approach the one year anniversary of the opening of Naval Medical Research Center – Asia in Singapore we were challenged to develop new strategies to spread our activities outside Singapore and Cambodia into other South East Asia countries. As frontrunners of our Navy, we must make decisions, all of us, about the activities that we chase, the research we conduct, the investments we make, and the kind of people we pursue to collaborate with. Some decisions are not easy, as we continue to be pressed by the fiscal and the budgetary restrictions we all feel. The proximity of Singapore to the entire region has allowed our scientists to expand their operations in North, Central, and Southern Laos as well as various sites in Vietnam, Nepal, Australia and soon Myanmar (Burma). In places such as Lao People's Democratic Republic we were able to partner with international organizations which were unable to expand their studies due to fiscal restraints. Due to our new partnership these institutions will now be able to expand their activities in very remote areas as well as maintain their traditional activities near the capital city of Vientiane. Same can be said about Vietnam, Cambodia, Australia and Nepal. Trust is key to all of this. It takes time to build trust; is shaped through negotiations, and activities; and, through initiatives that each of us may undertake and bring others into. People are the key element of trust. We are lucky to

have partners in Asia from the old days in Jakarta and even Manila, however many of us meet for the first time. This presents an instant challenge especially in countries where sentiments from prior military conflicts are still alive. NMRC-A/NAMRU-2 PP staff understands the challenges and are fully committed to spend whatever time is necessary to solidify our old and new relationships in the area, defeat is not an option.

NMRC-A/NAMRU-2 PP Commanding Officer sends,
Carlos LeBron, CAPT, MSC, USN

(continued from page 1)

included honoring NMRC's development of vaccines and diagnostics for malaria, dengue and rickettsial diseases.

"Today's event ties our past and our present mission together incredibly well," said Sanders, during his speech following the reading of the proclamation. "We talk about the need to decrease anti-microbial resistance; stop and detect emerging and re-emerging pathogens, and to deal with these vector-borne diseases, not only for the benefit of our troops, but for the

"You [NMHM] have captured in 'small bite, big threat' a way to convey the message that, it may not be in our backyard all the time, but it is a worldwide threat and it deserves a worldwide effort to eradicate each of these significant threats that we face."

benefit of global public health ... it is a shared global health security mission."

Along with honoring NMRDC and NMRC contributions in the progress of vector-borne disease research, other organizations were recognized to include the U.S. Army Medical Research and Materiel Command, Regional Office of the World Health Organization, the Armed Forces Pest Management Board, and the Walter Reed Army Institute of Research.

"You [NMHM] have captured in 'small bite, big threat' a way to convey the message that, it may not be in our backyard all the time, but it is a worldwide threat and it deserves a worldwide effort to eradicate each of these significant threats that we face," said Doll. "I would like to congratulate you on convening this today



NMRC Commanding Officer Capt. John Sanders signs the World Health Day proclamation at the National Museum of Health and Medicine. (Photo by Mikelle D. Smith, Naval Medical Research Center Public Affairs)

... thank you for the honor of representing Navy Medicine."

Following the commemoration ceremony, Doll and Sanders received a tour of NMHM from the Director Adrienne Noe. The tour included viewing museum collections relating to topics such as the human body, military medicine and the collection that teaches.

"We recognize that our mission has gone from a historical stand with Dr. Harry Hoogstraal to today with the global health security agenda," said Sanders. "I really appreciate them bringing this together to be able to celebrate."

NMRC will participate in an additional NMHM event celebrating World Health

Day. On Saturday April 12, 2014, NMHM will open up for community tours and fun activities geared toward understanding military research and development - individuals are encouraged to bring their families to partake in the festivities.

For more information regarding NMHM visit www.medicalmuseum.mil. To find additional information about World Health Day 2014 visit the World Health Organization web site at <http://www.who.int/en/>.

(Below) Graphic illustration by Mikelle D. Smith, Naval Medical Research Center Public Affairs



Check out the Navy Medicine Global Health Engagement Video!

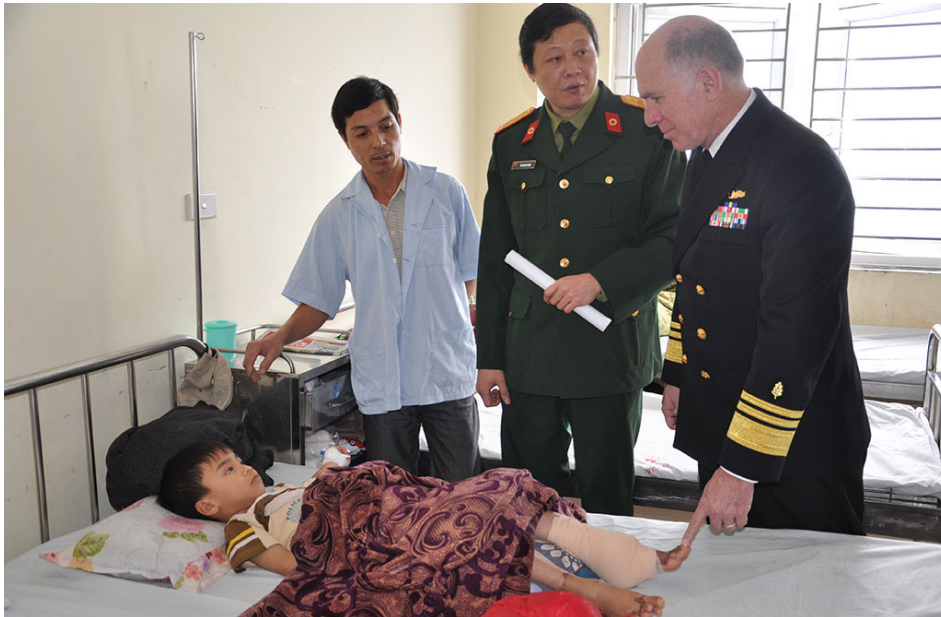
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Navy Medicine ... Presence Matters

Story by Vice Adm. Matthew L. Nathan, U.S. Navy surgeon general and chief, U.S. Navy Bureau of Medicine and Surgery



Vice Adm. Matthew L. Nathan, U.S. Navy surgeon general, meets with a patient at the National Institute of Burns, Hanoi, Vietnam. (Photo by Capt. Dora Lockwood, BUMED Public Affairs)

BUREAU OF MEDICINE AND SURGERY -- Earlier this month I wrapped up my first visit to our research facilities in Southeast Asia. I visited the U.S. Naval Medical Research Center-Asia (NMRC-Asia) in Singapore, the U.S. Naval Medical Research Unit No. 2 Phnom Penh (NAMRU-2 PP) and the Health Affairs Attaché office at the U.S. Embassy in Hanoi. I was truly impressed with what I saw and I'd like to share with you some highlights of my trip.

Let me start by saying Navy Medicine is making a significant impact on worldwide health. On this trip, I personally observed the dedication, commitment and cooperation of our global research and development efforts.

My first stop was NMRC-Asia. Building on a legacy of nearly 70 years of research in the region, NMRC-Asia is working very closely with our regional partners to prevent, mitigate, and control infectious disease. Our Navy Medicine personnel are working hand-in-hand with the U.S. Embassy in Singapore, distinguished Singaporean researchers, international health organizations, U.S. government agencies and the Singapore Armed Forces (SAF) on cooperative research initiatives.

I met with the U.S. Ambassador to Singapore, the Singapore Armed Forces Chief of the Medical Corps, and several senior SAF medical officers. Our discussions revolved around advances in military medicine, ongoing research efforts and the strategic value of our medical partnerships. There is no doubt that through our collaborative medical initiatives, we are making a strong relationship stronger.

My next stop was our research lab in Cambodia with a visit to NAMRU-2 PP. They are currently operating a laboratory located at the National Institutes of Public Health in Phnom Penh. The work being conducted there is not only important for the health of Americans and Cambodians, but for everyone around the world. Their research plays a critical role in our national security by looking into emerging infectious diseases that could threaten our deployed military service members.

While in Phnom Penh, I met with the U.S. Ambassador to Cambodia, the director of the Health Department for the Ministry of National Defense, and the Cambodia Minister of Health. We discussed our mutual commitment to continued public health partnerships and how medical engagement builds bridges

of understanding and support between nations.

I also had the opportunity to visit a NAMRU-2 PP field study site — a village in the Kampong Cham Province — and I witnessed life in rural Cambodia. I visited the homes of several families. I saw children there, some who were ill, some who had been infected by a strain of influenza or some other infectious disease. It was there that I saw firsthand how the talented and professional Cambodian and U.S. Navy researchers are working together to prevent the outbreak of diseases around the world ... starting with one small child. They work so passionately, not thinking of themselves, but for that child, out in the province who will grow up to live a happier, healthier, longer life.

Finally in Vietnam, I met with the Deputy Chief of Mission at the U.S. Embassy in Hanoi and the Vietnam People's Army Director General of the Military Medical Department. In addition, I toured several of their medical facilities. These meetings were instrumental in providing an overview of the many health related projects already in place and possible areas for future collaboration.

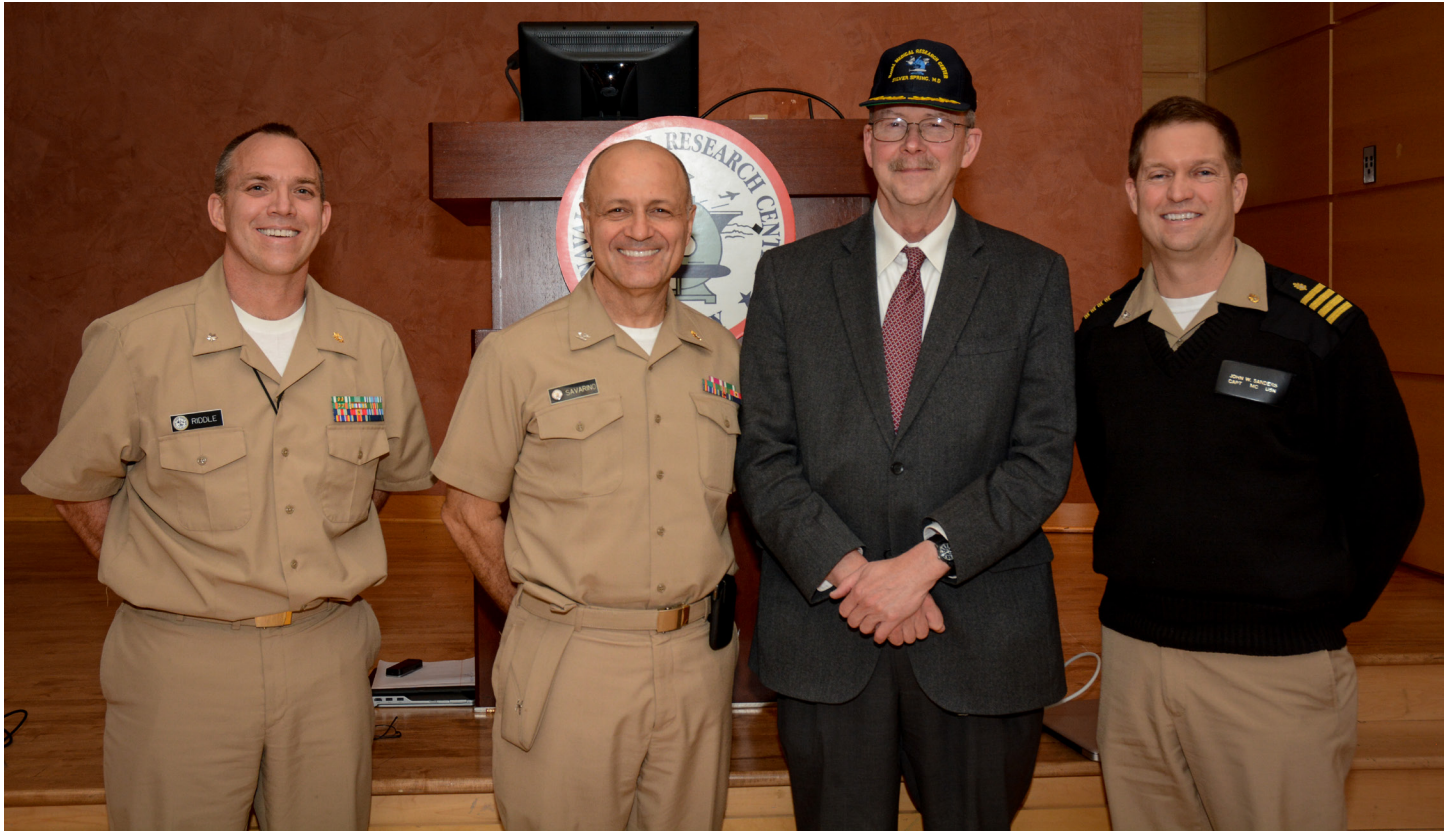
The hands-on exchanges demonstrate the cooperation between our militaries. Specifically, the Vietnam Interventional Burn Management Subject Matter Expert Exchange with Naval Medical Center San Diego in 2013 and the U.S. President's Emergency Plan for AIDS Relief (PEPFAR) and recent conferences with U.S. Pacific Command are just a few examples of the way we are working together and learning from one another.

We were given unprecedented access and visits in what is clearly a way to foster cultural exchange and medical sharing to benefit the region and the world. These exchanges exemplify a unique opportunity to advance medicine through collaboration and underscore our commitment to global partnerships. Whether we are providing medical care through one

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Prominent Scientific Researcher Visits NMRC Command

Story by Mikelle D. Smith, Naval Medical Research Center Public Affairs



(From Left) Lt. Cmdr. Mark Riddle, Capt. Stephen Savarino, Dr. John Clements, and NMRC Commanding Officer, Capt. John Sanders, following the closing remarks during a seminar presentation from Dr. Clements. (Photo by Mikelle D. Smith, Naval Medical Research Center Public Affairs)

SILVER SPRING, Md. – Naval Medical Research Center’s (NMRC) Enteric Diseases Department welcomed prominent scientific researcher, Dr. John D. Clements Ph.D., to be a key note speaker for a departmental seminar held, March 21.

Clements has been affiliated with NMRC since 1984 when he first met then enteric diseases department head, Ret. Navy Capt. Richard Walker. From that time on, Clements has become an integral asset to NMRC and the maintained working relationship has benefited the command in various applied and clinical research collaborations.

“He has been such a big part of NMRC and a big part of Navy medicine as a whole,” said NMRC Commanding Officer, Capt. John Sanders. “Most importantly, NMRC always feels that he is part of the command and truly appreciate everything that he has contributed over the years.”

The topic of discussion for the seminar

was “ADP-ribosylating Enterotoxin Mutants as Antigens and Adjuvants for Enteric Vaccines.”

“I and my laboratory have been involved in this research for the better part of my adult life,” said Clements during his introduction at the seminar. “It really goes beyond enteric vaccines ... the thing that is driving us right now in terms of enteric vaccines has to do with enterotoxigenic *E. coli* [ETEC] and pathogenesis of ETEC.”

ETEC, one of the most common *E. coli* infections, attaches to the intestinal lining, multiplies and produces toxins that stimulate a flood of intestinal fluids, which may cause diarrhea and consequent dehydration.

“Dr. Clements seminar is very important for two reasons,” said NMRC Director of U.S. Military Diarrheal Diseases Research Program Capt. Stephen Savarino. “First, it shows proof-of-principle that a live attenuated vaccine against ETEC can

work in volunteers. Second, it also shows proof-of-principle that the mucosal adjuvant dmLT can potentiate an immune response that is protective in volunteers.”

Sanders presented Clements with a NMRC command coin and a ball cap during the ceremony. He then led Clements on a tour of the facilities and had a luncheon with a variety of research scientists at the command.

Clements is currently a Professor of Microbiology and Immunology at Tulane University School of Medicine and maintains an active research program focused on development of vaccines against infectious diseases.

NAMRU-3 CO Visits West Africa to Expand Collaborative Research Efforts

Story from NAMRU-3 Public Affairs



NAMRU-3 Commanding Officer, Capt. Buhari Oyofa (right) pictured with West African official. (Photo courtesy of NAMRU-3 Public Affairs)

CAIRO – The U.S. Naval Medical Research Unit No. Three (NAMRU-3) has multiple activities in West Africa that stretch from Sierra Leone to Nigeria. To assist in maintaining collaborative research efforts in the region, NAMRU-3's Commanding Officer Capt. Buhari Oyofa, visited key leadership in some of those countries. On his list of stops were Liberia, Nigeria, and Ghana.

"The work we do in these countries is important for the host country as well as for Navy medical research," Oyofa said. "We have to have open dialog with the leadership so they know what we're doing.

Without their support we can't execute our mission."

In Liberia, Oyofa met with the U.S. Ambassador and the Liberian Minister of Health and Social Welfare. He opened the meetings by thanking them for their continued support and then presented a brief on NAMRU-3's activities in Liberia.

The highlight of his trip was meeting with the outgoing and incoming OICs of Operation Onward Liberty the U.S. military-led team that advises the Armed Forces of Liberia to support the development of a national military.

"NAMRU-3's Vector Biology Research Program (VBRP) led by Lt. Diclaro has done a fantastic job in executing VBRP projects in Liberia. They have received high praise for their preventive medicine support for the deployed members of Operation Onward Liberty," said Oyofa.

While in Nigeria, Capt. Oyofa met with the Vice Chancellor of the University of Calabar and the U.S. Consulate General there. He also met the Commanding Officer of the Nigerian Navy Hospital, Commodore Jeremiah Onubi, and discussed building a relationship that can lead to beneficial collaboration.

Oyofa said, "We have a strong working relationship with the University of Calabar, and there is potential to grow. Hopefully we will also be able to build a project to work with our partners in the Nigerian Navy."

The last stop on Oyofa's West Africa journey was in Ghana where Lt. Nehkonti Adams, the NAMRU-3 Ghana Det OIC, joined him to meet with the U.S. Ambassador and Ghanaian military and civilian leaders to solidify the relationship between NAMRU-3 and leadership that supports the NAMRU-3 detachment. At these meetings, Oyofa showcased NAMRU-3's accomplishments and demonstrated the importance of the Ghana Detachment's role.

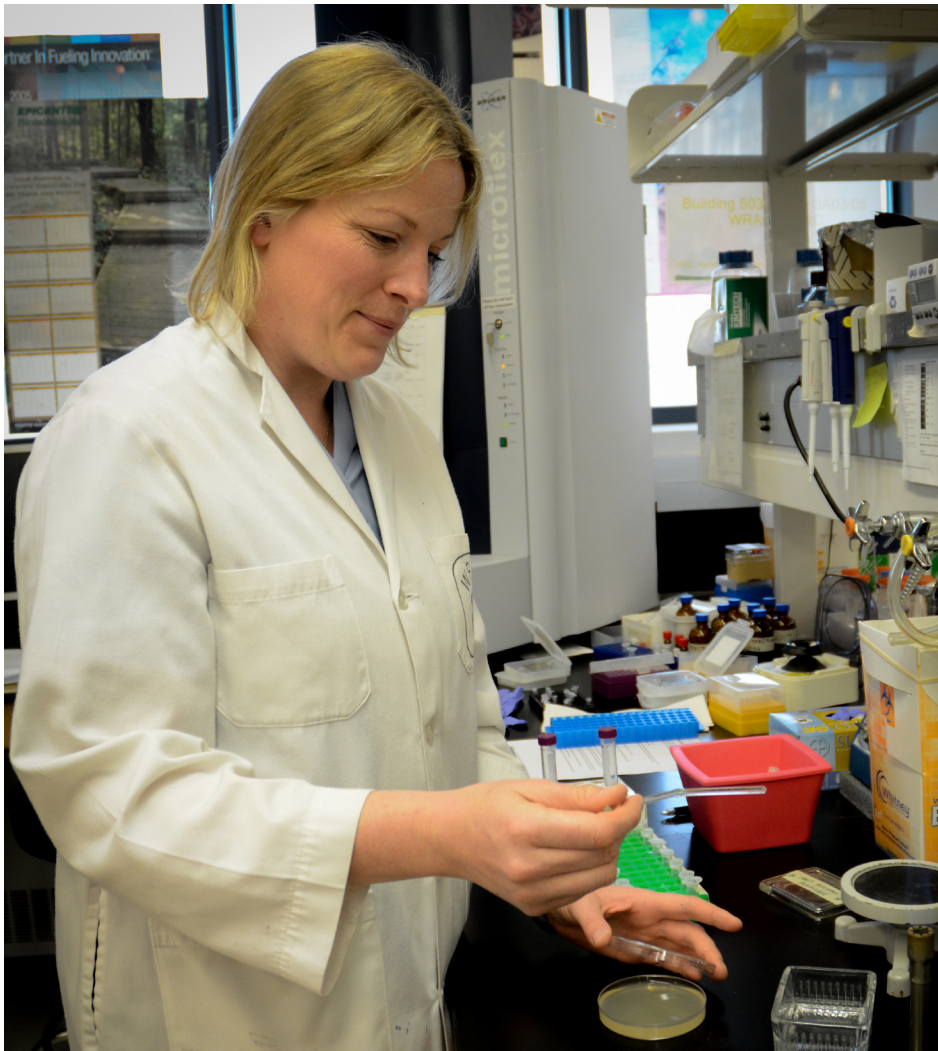
Oyofa also had the opportunity to survey ongoing research projects. "This trip was an eye opener for me," said Oyofa. "With NAMRU-3 officers like Lt. Adams, Lt. Diclaro, and Lt. Rozanski in the field, I could see the impact of NAMRU-3's research efforts in the region."

(Below) Graphic illustration by Mikelle D. Smith, Naval Medical Research Center Public Affairs



U.K. Royal Air Force Officer Collaborates with NMRC Enteric Diseases Department

Story by Mikelle D. Smith, Naval Medical Research Center Public Affairs



Royal Air Force Sqn. Ldr. Joanna Rimmer works with *Campylobacter* in an enteric diseases lab at Naval Medical Research Center (NMRC) facilities in Silver Spring, Md. (Photo by Mikelle D. Smith, Naval Medical Research Center Public Affairs)

SILVER SPRING, Md. – One of the most important aspects of scientific research is the development of partnerships to advance knowledge and make scientific discoveries, as well as to train the next generation of researchers. The Naval Medical Research Center (NMRC) Enteric Diseases Department has embarked on such a collaboration with a guest scientist from the United Kingdom (U.K.) via the Navy Engineering and Scientist Exchange Program.

Royal Air Force Sqn. Ldr., Dr. Joanna Rimmer, is currently under a two-year program working with NMRC's Enteric

Diseases Department in Dr. Patricia Guerry's *Campylobacter* Vaccine laboratory, as well as with the Clinical Trials and Epidemiology branch where she is contributing to advance joint military research aims and learning the culture and climate of vaccine research in the United States armed forces.

"I am a U.K. gastroenterologist in my third year of a total of five years of gastroenterology training," said Rimmer. "About three years ago, I met Cmdr. Mark Riddle and Capt. Stephen Savarino at a British Military Medical Conference in the U.K. The information that they

were sharing on enteric research sounded very interesting and quite relevant to my career as a gastroenterologist. I spoke with Colonel Connor who is now the head of the U.K. Physician Cadre ... he was already involved in some of the studies carried out by NMRC. He, along with Cmdr. Riddle, organized for me to come over here."

The process to get Rimmer to NMRC was arranged through the Navy International Programs Office. The Navy Engineering and Scientist Exchange Program falls under the Defense Personnel Exchange Programs and aims to promote international cooperation in military research, development, testing and evaluation (RDT&E) communities through the exchange of practical experience of defense engineers and scientists. This program places selected personnel into challenging and productive assignments in technical areas where their professional qualifications and capabilities are used to the fullest.

"Rimmer's arrival here demonstrates a closer alignment between the U.S. and the U.K. specifically in enteric diseases," said Riddle, NMRC's Enteric Diseases Department Head. "We have gained a dedicated clinician with great skills, great intelligence, ambition, and drive to get work done which enables us to do more. This exchange equally helps Rimmer, as well as cultivates a leader in the U.K. operational research of the future."

While at NMRC, Rimmer has been working with research scientists in the enteric diseases department on a variety of studies, all geared toward developing protection for individuals against *Campylobacter*, either through vaccination or antibiotics. One such study involves digging deep into exploration as it relates to *Campylobacter* infection research. According to the World Health Organization web site, *Campylobacter* occurs largely following consumption of contaminated undercooked poultry or

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NHRC Team Begins Sleep Screen Study Using Wearable Smart Shirt Technology

Story by Anna Hancock, Naval Health Research Center Public Affairs Officer



Photo courtesy of Marines.mil

SAN DIEGO - Researchers and neuroscientists from The Naval Health Research Center (NHRC) began a sleep screen pilot study using a smart textile shirt, March 20, in hopes to identify a cost-efficient, objective tool that can improve the health and readiness of active duty service members.

According to the Military Health Service, the most common complaints shared by service members returning from deployment are about the quantity and quality of their sleep. If the smart textile shirt proves to be an effective data collection tool, the team believes this technology may improve access and reliability of sleep diagnostic services, expedite sleep health treatment, and ultimately improve readiness.

“Sleep Apnea is very common and the most likely use for this technology. This is something that only a bed partner could guess about or the textile could pick up,” explained Dr. Diane Williams, acting Warfighter Department Head and research psychologist. “This could revolutionize the ease of collecting accurate sleep data in large numbers of people very inexpensively. It could also get service members to treatment in time to prevent cognitive impairment.”

The team works with volunteer, active duty participants from one of the eight local military bases. The service members wear the smart textile device, which is similar to an athletic shirt, and spend the night in the sleep lab. Data is collected via undetectable sensors that are embedded within the shirt’s fabric. The data are then stored and will be analyzed at the end of the pilot study. This is notably different from polysomnography tests with a minimum of 22 wires attached to the patient. Because of the increased comfort, the smart textile shirt should provide data more indicative of the patient’s normal sleep.

“Polysomnography tests are what people typically think of when they hear sleep studies – when you go to a clinic or hospital and stay overnight while connected to an array of electrodes on the head and body,” explained Dr. Gena Glickman, a research scientist with NHRC. “Although these types of sleep studies are currently the most informative way of examining sleep, two challenges are that they are costly, and there is always the question of whether or not the person is sleeping as they typically would in their home.”

Experts agree, however, that in-house

sleep studies are one of two clinical gold standards of practice for evaluating sleep. The second is actigraphy, which utilizes a wristwatch-like device that tracks sleep patterns. Throughout the pilot, the NHRC team will be comparing the smart textile shirt to polysomnography and actigraphy and if the results of the smart textile shirt are consistent with the gold standards the team will develop an algorithm for detecting sleep irregularities.

“It’s ironic in this culture that sleep is viewed to be a nuisance, that it gets in the way of performing their duties,” Glickman continued. “But if you sleep well, your cognitive performance or cardiovascular health, for example, will improve. Basically, with optimal sleep job performance is likely to be better. And it’s not just the quantity, or how long one sleeps, but more importantly, the quality of sleep that we want to measure and help improve.”

The team understands the importance of optimizing performance for the service member. NHRC has five different studies of sleep underway that characterize sleep in military members at various career stages and identify strategies for enhancing sleep health, countermeasures for sleep disturbance, and ultimately, to optimize performance.

Glickman acknowledged that the smart textile shirt will not likely replace standard polysomnography, but the hope is that the tool will enable large scale sleep health screens and efficiently identify individuals who require overnight sleep studies. The sleep screen pilot is expected to be complete by September 2014.

“If we can find a tool that collects accurate data and can be used in the home, whether it’s this textile or another tool, we will be able to identify sleep problems earlier and therefore, begin treatment sooner,” noted Glickman. “This may enable us to help service members sooner and in a more cost effective way.”

R&D Chronicles:

Saving Shipwrecked Personnel in World War II

By Andre B. Sobocinski, Historian, Bureau of Medicine and Surgery

"It got hot and then cold and we grew hungrier and thirstier. The men started dying one by one and we buried them as they died."

--William Colbon, lone survivor of an American torpedoed merchant ship, 1943



A painting of "The Lone Dinghy" by John Hamilton. (Courtesy of the Navy Art Museum)

After being established in 1942, the Navy Medical Research Institute (NMRI) set forth on an ambitious mission of saving the lives of military personnel through research and innovative thinking.

Throughout World War II, NMRI's staff of scientific troubleshooters pioneered aviation first aid kits, insect repellents, and resuscitation devices and devised new protective measures against blast injuries, immersion foot, seasickness and sunburn. But, all of these developments would follow in the wake of its first assigned project: devising a full-proof method for desalting seawater and developing special food rations for the war's unfortunate sea castaways.

Although there are no official statistics on how many World War II Sailors, Marines, merchant mariners and military aviators awaited rescue aboard life rafts in World War II, a conservative estimate would have been tens of thousands.

Following the loss of their ships or aircraft, the castaway would often face a gauntlet of inclement weather conditions, the threat of secondary attacks, sharks, and subsist—if "lucky"—on limited food and water rations. Without food, the average person can survive for about 21 days; and without water for about three days.

Beginning in 1943, NMRI experimented with chemically processing seawater so that it could be drunk by personnel adrift

on life rafts. In February 1943, NMRI scientist Lt. Cmdr. Spealman, H (S), USNR developed a multi-process filtering system for desalinating seawater.

A similar, but simpler method developed by the Permutit water conditioning company in collaboration with NMRI would later be adopted for widespread use. The "Permutit-Navy Desalting Kit" contained a plastic drinking bag with a cloth filter at its base and five briquettes of desalting chemical.

The castaway would collect seawater in the drinking bag, drop in a briquette, seal the bag and shake it. Within 20 minutes they would have access to a pint of fresh water that they could drink through a tube beneath the filter. Within the year, the kit would be adopted by the Army, Navy as well as American Airlines.

Food rations were another concern for NMRI researchers who sought to develop a ready supply of food that could "lend itself to easy consumption and efficient metabolism." Known as the "NMRI Emergency Ration," these small cans consisted of high fat butterscotch tablets, hard candy fruit drops (containing citric acid to promote the flow of saliva), malted milk tablets, chewing gum, multivitamin tablets and a waterproof pouch.

By 1944, these emergency rations would be adopted as a survival kit for Navy aviators and also serve as the "U.S. Navy Emergency Ration for Life Rafts."

NAMRU-3 Collaborates with WHO to Contain Malaria Outbreak in Djibouti

Story from NAMRU-3 Public Affairs



Djibouti laboratory staff with Dr. Isabelle Nakhla and Mr. Gamal El Okla. (Photo courtesy of MOH Djibouti)

CAIRO - As part of efforts to contain a malaria outbreak in Djibouti, WHO Eastern Mediterranean Region asked the U.S. Naval Medical Research Unit No. Three (NAMRU-3) to conduct malaria diagnostic training in Djibouti City, Djibouti, February 26 through March 8.

With more than 3,000 suspected cases, local laboratories and hospitals were experiencing difficulties with the accuracy of rapid diagnostics.

The Ministry of Health of Djibouti noticed many false positives and false negatives and recognized the need to train staff on how to read blood smears by microscopy. Training for 28 laboratory staff was held at the Faculty of Medicine of Djibouti, which provided a lab equipped with over 20 microscopes.

NAMRU-3's Lt. Cmdr. Sam Levin, Head, Research Science Directorate said, "we anticipate this training will increase the Djiboutian medical system's ability to expedite identification and treatment for malaria, and to decrease transmission through proper treatment. We also hope the assistance provided will facilitate our future engagements with the Djibouti

Ministry of Health."

Levin has been working with the U.S. Embassy in Djibouti and the Djibouti Ministry of Health to establish an International Health and Medical Agreement for expanded collaborative work in Djibouti. Mr. Gamal El Okla, NAMRU-3's Bacterial and Parasitic Diseases Research Program, served as the primary trainer for microscopy. Dr. Isabelle Nakhla covered the module on malaria rapid diagnostic tests (RDTs).

This hands-on training utilized RDTs provided by WHO and slide sets built by NAMRU-3. The Djibouti Ministry of Health provided blood samples for confirmation of the diagnosis and for use in the practical portion of the training.

The training covered all the steps on how to prepare and stain thick and thin films, how to read the slides by light microscope, and care for the slides and microscopes. Each trainee prepared films and read them under the microscope until mastering the task. Dr. Ali Abdallah, the Secretary General of the Ministry of Health, visited the laboratory during the training and expressed his appreciation for NAMRU-

3's contributions to the public health of Djibouti.

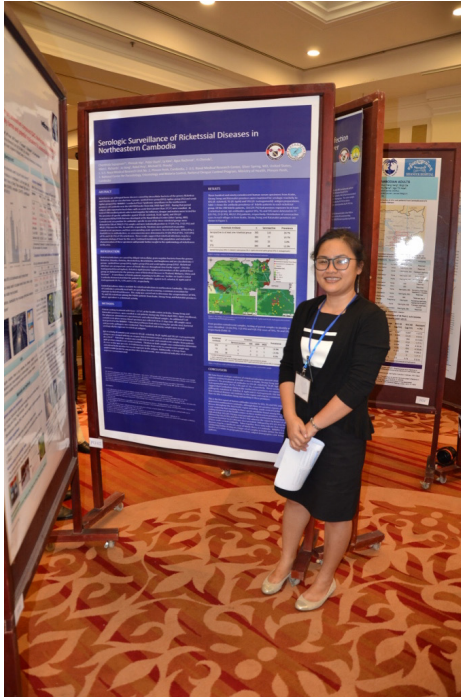
The trainees commented on the interactive methods of teaching and the expertise and patience of the trainers. The success of the training was also demonstrated in substantial differences in pre and post test results.

Dr. Isabelle and Mr. Gamal accompanied CJTF HOA Command Surgeon, Navy Capt. Rom Stevens; Levin, and the Djibouti WHO representative to meet with the Director of Central Public Health, who said the team from NAMRU-3 would optimally return to Djibouti to provide refresher training.

WHO has also requested NAMRU-3 trainers return in September to visit the units throughout the country to see how they have implemented what they learned. NAMRU-3 has been working with the CJTF-HOA, AFRICOM and Camp Lemonnier since the original malaria outbreak in January-February 2013.

NAMRU-2 PP Contributes to the Regional Symposium for Emerging Infectious Disease in Southeast Asia

Story by Lt. Gavin Ford, U.S. Naval Medical Research Unit No. 2 Phnom Penh



Chronthida Supraprom, senior lab manager, next to her poster presentation on surveillance of Rickettsial diseases in Northeastern Cambodia, at the Regional Symposium for Emerging Infectious Diseases in Southeast Asia (Photo courtesy of NAMRU-2 PP Public Affairs)

PHNOM PENH, Cambodia - Naval officers and Cambodian staff from the

U.S. Naval Medical Research Unit No. 2 Phnom Penh (NAMRU-2 PP), Cambodia, attended the Regional Symposium for Emerging Infectious Diseases in Southeast Asia sponsored by the Institut Pasteur du Cambodge to foster collaboration between research institutions and public health authorities dealing with human and animal pathogens in the region, March 11 to 12.

Major topics of the symposium included highlighting the diversity of infectious agents relevant to Southeast Asia; environmental reservoirs for pathogens; vectors for pathogen transmission; and interactions of human populations and the natural environment as it pertains to many forms of infectious disease.

NAMRU-2 PP was well represented at this symposium with several presentations being given by staff covering a wide range of subjects. NAMRU-2 PP's Head of Bacteriology, Mr. Chamroeun Oum was invited to give an oral presentation on the prevalence and genetic description of antibiotic resistant Group A Streptococcus (GAS) in Cambodia, specifically the resistance of GAS to erythromycin. Data for the presentation was collected over a three year period as part of a long running NAMRU-2 PP study performing

large scale surveillance to determine the etiologies of febrile illness in Cambodia. A total of 17 percent of GAS isolates were determined to be resistant to erythromycin. Future genetic testing is planned on these erythromycin resistant isolates to determine genetic markers of resistance.

NAMRU-2 PP's senior lab manager, Chronthida Supraprom, gave a poster presentation discussing the surveillance of Rickettsial diseases in Northeastern Cambodia. Serologic testing for *R. rickettsii*, *R. typhi*, and *O. tsutsugamushi* was performed on 390 subjects. Evidence for recent infection came from paired serum specimens and it was found that 16.9 percent of subjects had IgG antibodies to *R. rickettsii*, 13.0 percent for *R. typhi*, and 8.3 percent for *O. tsutsugamushi*. The ELISA tests used in this research were developed at the Naval Medical Research Center.

Southeast Asia is a melting pot for infectious diseases. NAMRU-2 PP's important role in prominent research conferences such as this symposium is evidence to the success NAMRU-2 PP is having in an area of high scientific and strategic importance to Navy Medicine.

Peruvian Investigator Gives Seminar on Ribosome Profiling

Story courtesy of Naval Medical Research Center Public Affairs

SILVER SPRING, Md., -- Dr. Mariana Leguia, a researcher at U.S. Naval Medical Research Unit No. Six (NAMRU-6), in Peru presented a seminar on Ribosome Profiling to interested staff from Naval Medical Research Center's (NMRC) Infectious Diseases Directorate, March 19.

Ribosome profiling is a powerful new molecular tool that Leguia is using in her research at NAMRU-6's Genomics and Pathogen Discovery Unit within the Department of Viral and Emerging Diseases.

She hopes to employ the tool to monitor global changes in gene expression in the

cells of patients infected with regional infectious diseases such as dengue to better understand the interaction of infectious agent and infected patient at the molecular level.

"Dr. Leguia is emblematic of the type of investigator we need to attract to our Naval medical research labs," said Dr. Stephen Walz, NMRC's Director for Field Lab Operations. "If we are to be significant contributors to the biomedical research advances that not only protect our troops, but also promote global health."

Leguia earned her undergraduate degree in Biology from Lawrence University

in Appleton, Wis., and attended Brown University where she earned a Ph.D. in Molecular Biology, Cell Biology, and Biochemistry. Additionally, she did a 5-year post-doctoral at the University of California (Berkley) working in Synthetic and Systems Biology before returning to Peru to join NAMRU-6 staff in 2011.

In 2012 she successfully competed for an NMRC ILIR program award for a project titled, "Development of a Pipeline to Monitor Global Changes in Gene Expression Profiles via Ribosome Profiling", now into its second performance year.

Navy Researcher Talks about Women in Research in Navy Medicine

Story from Naval Medical Research Center Public Affairs



Capt. Judith Epstein sits (left) on the panel at the Women's Day Global Health Symposium in Chicago. (Photo courtesy of The Chicago Council of Global Affairs)

SILVER SPRING, Md. – Capt. Judith Epstein, Clinical Director, Malaria Vaccine Development program at the Naval Medical Research Center participated in a two person panel at the International Women's Day Global Health Symposium in Chicago, March 6. The symposium explored how women are affecting change in the health field, locally and globally, and examined the economic, political, geographic and cultural factors involved in addressing global women's health.

Epstein joined Dr. Laila E. Woc-Colburn, Director of Medical Education, National School of Tropical Medicine, in a question and answer session led by Karen A. Goraleski, Executive Director, the American Society of Tropical Medicine and Hygiene. The questions focused on how women are affecting change in the health field, especially medical research.

"This was a great opportunity to talk about my experience in the Navy and the wide variety of careers open to women interested in pursuing medicine and science within the DoD," said Epstein.

Epstein spoke about the role of women physician-scientists in Navy Medicine, the importance of mentoring junior military and civilian researchers, and highlighted her role in the development of a novel candidate malaria vaccine as an example.

"Scientists at the Naval Medical Research Center, working with our colleagues at the Walter Reed Army Institute of Research, have long been at the forefront of malaria vaccine research and we are excited about recent scientific breakthroughs in the development of a live, attenuated whole organism malaria vaccine."

She went on to talk about the impact a successful vaccine would have not only on health and readiness of the deployed warfighter, but on pregnant women and young children in the global community.

The event sponsored by the Chicago Council on Global Affairs was part of the Women and Global Development forum. Over 300 hundred professional women attended. Through keynote addresses and breakout sessions, attendees were engaged in dialogue on women's health issues with medical, research, advocacy, corporate, and nonprofit leaders from around the world.

NAMRU-6 Researchers Participate in Fourth Annual American Society of Tropical Medicine and Hygiene Conference

Story from NAMRU-6 Public Affairs



NAMRU-6's Dr. Edward Smith presents his malaria research during the ASTM&H Peru poster session. (Photo courtesy of NAMRU-6 Public Affairs)

LIMA, Peru - The Fourth Peruvian version of the American Society of Tropical Medicine and Hygiene (ASTMH) conference was recently held in Lima, February 19, 2014. There were 388 attendees from all over Peru, including a few from the United States, and two from Brazil.

This event is annually sponsored by seven Peruvian universities and government entities. This year the conference was also partially funded by the Peruvian president's advisory board on science: Consejo Nacional de Ciencia y Tecnología del Perú, CONCYTEC.

This event offered Peruvian investigators who attended the American Society of Tropical Medicine and Hygiene (ASTMH) Annual Meeting in Washington D.C. last November the opportunity to present their work in Spanish, at a local venue, and to an audience of Peruvian researchers, professors and students.

Presenters attend for free but others pay a registration fee which is used by ASTMH

Peru to provide a partial scholarship to two Peruvians to attend the U.S. meeting in New Orleans this November. Since the start of ASTM&H Peru, six Peruvian scientists have travelled on these scholarships.

The U.S. Naval Medical Research Unit No. Six (NAMRU-6) Commanding Officer, Capt. Kyle Petersen said "ASTM&H Peru is a nice opportunity for Peruvian scientists and physicians to get their work recognized by their peers. Attending science meetings in the U.S. is expensive and is beyond the means of most residents and junior scientists."

This (event) lets folks who couldn't attend the (ASTMH) meeting get caught up on the latest science information and folks who attended (ASTMH) an opportunity to show their work here in Peru so it's a win-win," said Petersen.

He added, having presented at a Peruvian medical conference last year in Spanish, I can attest that presenting in a foreign language is difficult and intimidating,

being able to talk in your native tongue makes it much easier for our Peruvian scientists and physicians."

The 2014 event included 74 posters (a 90% increase from last year) and 17 oral sessions. Presentations covered a diverse range of public health topics including malaria, leishmaniasis, cysticercosis, dengue, enteric diseases and other areas. Almost half of presentations were led primarily by young investigators.

This year there were also three educational sessions: scientific writing, the progression of an investigator and a discussion with Peruvian government public health decision makers on how to best use research results to benefit health care, and how to facilitate research.

This year's key note presentation was given by Dr. Richard Oberhelman on International Collaborative Training Grants in Infectious Diseases. ASTM&H president, Dr. Alan Magill delivered closing remarks.

NAMRU-2 PP Scientists Participate in HA/DR Exchange

Story by Megan Clavier, Naval Medical Research Unit-Two PP Public Affairs



NAMRU-2 PP research scientist, Dr. Nary Ly teaches during the disease disaster session where she covered regional medical issues and prevention. (Photo courtesy of NAMRU-2 PP Public Affairs)

PHNOM PENH, Cambodia -- Last week the Humanitarian Assistance Disaster Response Medical Subject Matter Expert Exchange (SMEE) took place at the Ministry of Interior- Phnom Penh, Cambodia, March 17 through 21.

Staff members from the U.S. Naval Medical Research Unit No. 2 Phnom Penh (NAMRU-2 PP) led some of the training

sessions. The purpose of the SMEE was to improve interoperability, increase local medical capability and capacity to respond to internal Humanitarian Assistance/Disaster Response events, and foster goodwill in alignment with theatre security goals.

The SMEE included about 30 attendees from all medical backgrounds such

as doctors and nurses from the Royal Cambodia Armed Forces, police, and military police. Over the five days the attendees learned about medical prevention and infectious disease outbreaks that emerge or re-emerge after disasters, the disaster planning process, sheltering and evacuation, Cambodia disease disaster response, triage principles and many more topics.

The SMEE group activities were used to help aid in understanding how these principles could be applied in real world situations. After each lecture, everyone was excited to exchange their experiences and knowledge, creating a closer relationship and greater understanding between the U.S. and the host country.

NAMRU-2 PP research scientist, Dr. Nary Ly led the disease disaster session and also covered regional medical issues and prevention. After her talk many attendees had questions regarding mosquitoes as vectors, wanting more specifics of how disease spreads. Specifically, one official asked to know exactly how contamination of mosquitoes worked. After ten minutes of question and discussion, the attendees all appeared grateful for Dr. Ly's explanation.

Royal Air Force Officer Collaborates with NMRC Enteric Diseases Department

(continued from page 7)

contaminated water. The most common symptoms of campylobacter infection include diarrhea, abdominal pain, fever, headache, nausea and vomiting.

"*Campylobacter* is one of the top four diseases-causing enteric pathogens responsible for severe diarrhea and dysentery in the U.K., U.S. and worldwide," said Rimmer. "I am involved in two projects related to this infection. They include further understanding of disease pathogenesis and development of an assay that demonstrates levels of immunological protection following vaccination against *Campylobacter*. I am also evaluating whether an antibiotic, Rifaximin, can prevent *Campylobacter*

infection in a human challenge model." Rimmer is among a primarily small scientific community in the U.K. military, which makes collaboration with NMRC a particularly important arrangement.

"In the U.K. there is the Military Enteric Disease Group, which is a sub-section of the U.K. Defense Medical Services headed by Colonel Connor," said Rimmer. "That group is looking into and carrying out research in various fields of diarrhea."

This research exchange, in part, serves to train a future leader of this research group with one of the largest takeaways for Rimmer and the U.K. scientific research community coming in the form of understanding research as it pertains to military functionality in a mature research

organization such as that found at the NMRC.

"While working with us here, Dr. Rimmer is getting the operationally, clinically relevant research experience that is unique to the United States military," said Riddle. "Participating in research activities within a military setting should give her credentials and enthusiasm when she goes back so people can see there is an opportunity to continue this research in the U.K. and we can do this collaboratively."

Rimmer is slated to return to the U.K. in September 2015. The U.S. and U.K. groups are already planning on identifying the next person to have a follow-on exchange.

NMRC-Asia Conducts Collaborative Medical Entomology Training with Public Health Experts in Lao PDR

Story by Lt. Cmdr. Ian Sutherland, Naval Medical Research Center-Asia Public Affairs

VIENTIANE, Lao PDR -- Scientists from Naval Medical Research Center – Asia (NMRC-A) along with partners from the Institute Pasteur du Laos (IPL), and the Smithsonian Institution (WRBU) teamed up from February 24 to 28 to provide a medical entomology training workshop to local health professionals from across the country.

This week-long class was designed to provide intensive, practical expertise on the identification, taxonomy, and biology of medically important ticks, mosquitoes, and sand flies from this key region of Asia. Vector-borne diseases, such as malaria and dengue, are a major cause of high morbidity and mortality in Lao PDR and across the Greater Mekong Sub-region. Development of the core skills to

correctly identify vectors of disease and to characterize their ecology are vital to the effective direction of disease control efforts. This is the first in-depth workshop on arthropod taxonomy and related specialty topics to be given in Lao PDR.

Sixteen local civilian and military students gathered at IPL's Vientiane facility representing nine provincial divisions and critical national agencies such as the Lao Department of Disease Control; the Lao Center for Malariology, Parasitology, and Entomology; Lao Military Hospital #103, and the Lao Military Institute for Disease Prevention and Control.

Following the lab portion of this course, some members then headed south to Khammoune, a forested and mountainous province bordering Vietnam where they

conducted surveillance and identification fieldwork, March 1 to 7. This enabled them to immediately apply in the field what they learned in the classroom.

This cooperative activity was conducted in direct support of NMRC-A's ongoing projects with the Armed Forces Health Surveillance Center (AFHSC) and its Global Emerging Infections Surveillance and Response System (GEIS) programs. Through investments in collaborative regional partnerships such as these, NMRC-A continues to build friendships and sustain its nearly 70 year-strong legacy of leadership in the research and prevention of infectious disease throughout Asia.

Univ. of Maryland Researcher Presents Seminar on Salmonella Infection

Story From Naval Medical Research Center Public Affairs

SILVER SPRING, Md.
— Rosangela Mezghanni, Ph.D., Assistant Professor in the Department of Pediatrics at the University Of Maryland School Of Medicine, Center for Vaccine Development, discussed *Salmonella* infection and current research efforts with staff and guests at the Naval Medical Research Center, March 18. The seminar focused on developments in the field of immunology that can lead to new treatments.

Salmonella infection is a common problem in children in developing countries with limited access to clear water and proper sanitation. Also, over the past years a growing number of *salmonella* outbreaks have been reported in industrialized countries, with eight outbreaks reported in the United States in 2013.

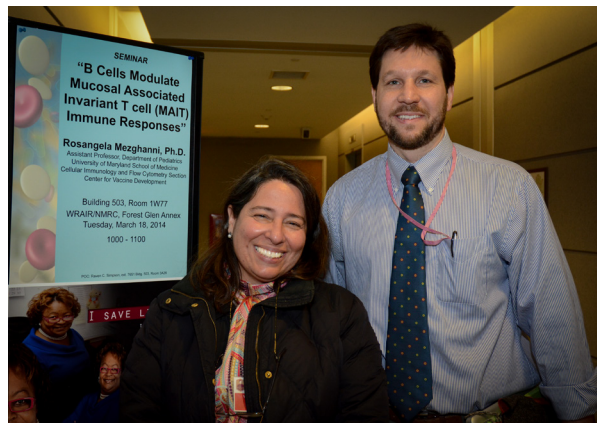


Photo by Mikelle D. Smith, Naval Medical Research Center Public Affairs

A common finding by researchers when measuring immune responses to *Salmonella* in people is the presence of background responses before immunization. Although responses are rather variable, with higher levels observed in people in regions of the world with limited sanitation, it has been observed in people around the world. Yet the nature of these background responses remains largely unknown.

Mezghanni's presentation focused on results showing that mucosal associated invariant T cells, a population of T cells abundant in the human intestine, can be detected in people before *Salmonella* infection and are effectively stimulated by bacteria-infected B cells. These results provide important insights into the role of B cells and the gut immune surveillance of enteric bacteria.



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NAMRU-6 Microbiologist Speaks to Second Graders about Renewable Energy & Protecting the Environment

Story from NAMRU-6 Public Affairs



NAMRU-6 microbiologist, Lt. Robert Hontz speaks with a classroom of second grade children at Colegio Roosevelt in Lima, Peru. (Photo courtesy of NAMRU-6 Public Affairs)

LIMA, Peru -- U.S. Naval Medical Research Unit No. Six (NAMRU-6) microbiologist Lt. Robert Hontz spent time speaking with second grade students at Colegio Franklin Delano Roosevelt (The American School of Lima) about what actions are being taken to sustain earth's limited resources, and how they can help take action to keep our planet healthy.

Hontz spoke as part of Colegio Roosevelt's mission to teach children interesting and exciting ways to "think globally and act locally" when it comes to resource conservation.

Hontz, director of the Vector Borne and Zoonotic Disease Unit of the Department

of Virology and Emerging Infections at NAMRU-6 taught the students about microorganisms that are both good for human health and contribute to keeping our planet healthy.

With a wide variety of high resolution EM and colorful light microscope images, Hontz told the children interesting facts about how microorganisms residing inside and outside the human body contribute to food digestion, synthesize essential vitamins like B12 and K, and fight off "germs" that would make people sick.

He also taught how naturally photosynthetic bacteria use water and sunlight, as plants and trees do, to produce

oxygen that humans can breathe. In fact, the second graders learned that the majority of breathable oxygen that we use comes from microorganisms that live in the ocean!

Hontz also covered viral and bacterial uses in agriculture to avoid the use of harmful pesticides and provided an overview of how microorganisms protect leaves of crops and plants from parasites, enhance nitrogen utilization resulting in stronger root mass, and increase water utilization during drought conditions.

Hontz explained to the second graders how scientists are using microorganisms to protect the environment and develop cleaner and more renewable energy sources like "oil eating" bacteria to clean up oil spills quickly, especially during the Deep Water Horizon accident of 2010 and a class of bacteria called *Methanogens* that scientists are now using as an alternative to fracking for purifying natural gas.

The children and teachers at Colegio Roosevelt were very appreciative to Lt. Hontz's efforts in Science, Technology, Engineering and Mathematics (STEM) education, which is a priority area for the Peruvian president and a major part of the NAMRU-6 diplomatic mission. Conserving earth's resources, and developing new ways to produce cleaner renewable sources of energy benefits all of us.

NMRC Holds Research Integrity Training Course

Story by Mikelle D. Smith, Naval Medical Research Center Public Affairs

SILVER SPRING, Md. — Naval Medical Research Center (NMRC) military and federal employees participated in the Research Integrity Training Course, March 12.

The course is designed to inform individuals working in the research environment of rules and regulations they must be aware of while working in such a demanding atmosphere.

"The purpose of research integrity training is to foster an atmosphere of public trust

in government research," said Dr. Al Churilla, instructor of the course and NMRC lawyer. "We must make sure everyone ensures research is conducted responsibly and lawfully."

During the training, attendees were updated on current Bureau of Medicine and Surgery (BUMED) instruction 6500.3, which states the requirement to establish Navy Medicine strategic policy for the promotion of research integrity, continuing education in the responsible conduct of

research, and the handling of allegations of research misconduct.

The function of NMRC's legal office is to represent the Navy's interest by providing legal advice concerning a wide variety of general legal issues involving the research and development. The office also protects the Navy's interest in intellectual property related matters concerning patents, trademarks and copyrights.

The course will be held again July 16 and September 17.

Laboratory in Egypt Holds H7N9 Workshops for WHO Eastern Mediterranean Region

Story from Naval Medical Research Unit-Three Public Affairs



NAMRU-3's Mary Younan, (standing left behind seated man) provides hands-on training to WHO EMRO trainees on H7N9. (Photo courtesy of NAMRU-3 Public Affairs)

CAIRO - Two H7N9 workshops were held at the U.S. Naval Medical Research Unit No. Three (NAMRU-3) in February and March 2014 in response to an annual WHO laboratory assessment in the Eastern Mediterranean Region (EMR). Thirteen trainees from Kuwait, Bahrain, Saudi Arabia, Egypt, Lebanon, Jordan, Oman, Sudan, Qatar, Yemen, Iraq and Morocco attended the workshops. NAMRU-3 staff provided training on both the WHO and CDC H7N9 protocols.

Prior to the training, WHO had sent out an external quality assessment (EQA) panel of viruses that were unknown to

the National Influenza Centers (NIC) in the region. Many of the labs were unable to detect H7N9, which was one of the unknown viruses in the panel. This was concerning because the NICs serve as sentinel surveillance centers. There was the perception that this virus only circulates in China and would not come to the region. The risk of expansion to other currently unaffected areas is high as migratory birds have been shown to introduce new virus strains to naïve populations. The NIC labs normally order influenza diagnostic kits online through the CDC-supported Influenza Reagent Resource (IRR) Center. Updated

diagnostic kits were not readily available.

“Broadening the diagnostic capabilities in these NIC labs through workshops is critical for pandemic preparedness. The introduction of new Influenza strains into a country presents in the lab as Influenza A unsubtypeable,” said Lt. Cmdr. Gabriel Defang, Head of the NAMRU-3 Virology and Zoonotic Disease Research Program (VZDRP), who oversaw the workshops.

NICs are trained to sequentially test all positive Influenza A for H1, H3, H5, and now H7, continued Defang. Unsubtypables are immediately shipped to a WHO reference lab, including NAMRU-3 for identification.

To address this issue, NAMRU-3 contacted the DoD's Global Emerging Infections Surveillance and Response System (GEIS) which funded the Naval Medical Research Center to develop H7N9 diagnostic kits that were shipped to NAMRU-3. Upon completion of the H7N9 workshops each EMR country was provided the kit equipping them with the tools needed to conduct laboratory-based surveillance of H7N9.

According to Defang, It is expected that the fruits of the H7N9 training will be reflected in the next assessment evaluation of the EMR NICs.

World Health Organization Viewpoint on H7N9

According to the WHO web site, Avian influenza H7N9 is a subtype of influenza viruses that have been detected in birds in the past.

This particular H7N9 virus had not previously been seen in either animals or people until it was found in March 2013 in China.

However, since then, infections in both humans and birds have been observed.

The disease is of concern because most patients have become severely ill. Most of the cases of human infection with this avian H7N9 virus have reported recent exposure to live poultry

or potentially contaminated environments, especially markets where live birds have been sold.

This virus does not appear to transmit easily from person to person, and sustained human-to-human transmission has not been reported.

NAMRU-6 conducts Community-based Influenza Surveillance

Story from Naval Medical Support Unit-Six Public Affairs



Field workers visit participating households three times each week to investigate for new cases of respiratory disease. (Photo courtesy of NAMRU-6 Public Affairs)

LIMA, Peru -- Since 2009, the United States Naval Medical Research Unit No. Six (NAMRU-6) with on-going support from the Peruvian Ministry of Health (MOH), the Centers for Disease Control and Prevention (CDC), and the Armed Forces Health Surveillance Center (AFHSC), has maintained an active population-based household cohort study of influenza-like illness (ILI) in four ecologically diverse cities in Peru. These places include Lima-coastal desert; Tumbes-tropical dry forest, Cusco-Andes mountains; Puerto Maldonado-Amazon forest.

The study collects detailed

epidemiological data to elucidate the complex transmission dynamics of influenza and other respiratory viruses in the tropics, and to provide a foundation to examine the impact of interventions. More than 10,000 people in 2,500 households are visited three times a week by NAMRU-6 field workers who inquire about ILI symptoms such as fever, cough, or runny nose.

“NAMRU-6 cohorts are a unique asset and will provide invaluable data on transmission dynamics of influenza in the tropics,” said NAMRU-6 Commanding Officer Capt. Kyle Petersen. “They also safeguard our national security by alerting

about possible pandemics, kudos to all our field and laboratory workers who labor on this important project.”

Nasopharyngeal swabs are collected and tested for influenza virus on-site using a rapid influenza test, and again by real-time reverse transcriptase polymerase chain reaction (RT-PCR) at NAMRU-6. Positive samples are sequenced and compared to other influenza viruses circulating in the community, at other sites in Peru, and around the world to determine the origin and transmission patterns. In addition, detailed data is collected on household demographics, socioeconomic status, crowding, ventilation systems, sanitation, contact with animals and comorbid health conditions. Participants are followed for an additional 15 days to monitor the course of the illness. The incidences of ILI and confirmed influenza cases are reported weekly to NAMRU-6’s Peruvian partners to help guide prevention and control measures.

The data is also integrated with other surveillance data at NAMRU-6 from studies in other Latin American countries and reported quarterly to the AFHSC and CDC. NAMRU-6 also tests the samples for various other viruses causing ILI. This include but are not limited to coronaviruses, human metapneumoviruses, respiratory syncytial viruses, enteroviruses and parainfluenza viruses, which provides extremely valuable information on other causes of ILI.

NSMRL Researcher Receives Cudahy Award

Story from Naval Submarine Medical Research Laboratory Public Affairs

GROTON, Conn. - Dr. Michael Qin was recognized for professional achievement in the superior performance of his duties and selection as the Dr. Edward Cudahy Scientist of the Year 2013 for the Naval Submarine Medical Research Laboratory at an awards ceremony, March 21.

This award was created to honor Cudahy’s significant contributions and leadership in

mentoring of military and civilian research personnel. Qin’s depth and range of his scientific work is evidenced in 13 different active work units on which he is the principal investigator covering diverse fields of study ranging from research on bio-effects of underwater sound, to applied human factors analysis of visual displays for a new 360 degree photonics mast.

During 2013, Qin not only expanded on research initiatives and programs originally envisioned by Dr. Cudahy, but also developed and mentored a maturing team of scientists, engineers and research assistants. These works have enhanced NSMRL’s capabilities and established new lines of research relating to the submariner and the submarine fleet.

Joint Multicultural Committee Celebrates Women in Navy Medicine during Women's History Month

Story by Mikelle D. Smith, Naval Medical Research Center Public Affairs



NMRC Executive Officer Capt. Elizabeth Montcalm-Smith gives the opening remarks during the command's women's history month ceremony. (Photo by Mikelle D. Smith, Naval Medical Research Center Public Affairs)

SILVER SPRING, Md. -- The Joint Multicultural Committee at Naval Medical Research Center (NMRC), celebrated Women's History Month during a recognition ceremony held in the Albert Behnke Auditorium, March 12.

The theme of the ceremony "Celebrating Women of Character, Courage and Commitment," included opening remarks and a speech by NMRC's Executive Officer, Capt. Elizabeth Montcalm-Smith, as well as a special video message from Illinois state representative Tammy Duckworth.

"Women have served in the Army and Navy for many years," said Montcalm-Smith. "During the civil war, they were not recognized as being part of the Department of Defense, but they served as nurses and administrative clerks, fulfilling those roles through the world wars."

Montcalm-Smith went on to point out a plethora of contributions made by women in the services, including Navy Medicine. She also encouraged continued efforts to

"These great women have proven again and again, that America's daughters are just as capable of defending liberty as their sons," said Duckworth. "As we acknowledge the growing role of women in the military, we must make sure they get the serves they deserve."

incorporate women throughout all aspects of military service.

"With very few exceptions, many career paths in the Department of Defense are now open to women," said Montcalm-Smith. "Women make up about 16 percent of the Navy and Army; and, if you look at those numbers in the medical services they are about doubled that percentage. I hope everyone can take a few moments to reflect on the changes in our society and how women are being fully integrated into the Department of Defense."

Duckworth, an Iraq War Veteran and former Assistant Secretary of Veterans Affairs, has been considered by many an inspiration to women serving in the armed forces.

"Despite many obstacles through the years, women have given so much to our military and their contributions continue to grow," said Duckworth. "Our victory in World War II could not have been achieved without women at home and abroad. Through the last decade, they [women] have made enormous contributions to our efforts in Iraq and Afghanistan, and now will finally get the opportunity to officially serve in combat roles."

In 2004, Duckworth was deployed to Iraq as a Blackhawk helicopter pilot and sustained severe injuries during Operation Iraqi Freedom when her helicopter was struck by a rocket propelled grenade. She lost both legs and has partial use of her right arm.

"These great women have proven again and again, that America's daughters are just as capable of defending liberty as their sons," said Duckworth. "As we acknowledge the growing role of women in the military, we must make sure they get the serves they deserve."

Duckworth went on to discuss the continued needs of women in military medical and research fields. She also thanked service members for their contributions to medicine and healthcare.

At the end of the ceremony, attendees had the opportunity to participate in a variety of activities, to include a trivia event and photographs as "Rosie the Riveter."

Navy Medicine ... Presence Matters

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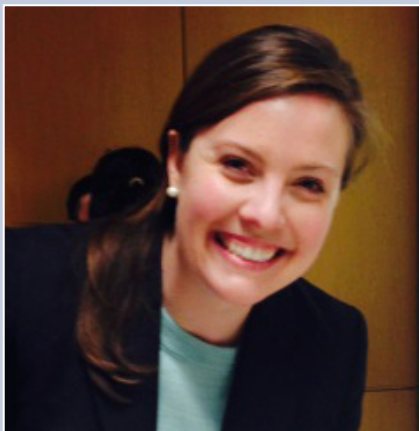
of our humanitarian assistance efforts, partnering with local ministries of health, or conducting disease surveillance at one of our labs around the world, Navy Medicine is making a significant impact on global health, and by doing so, we are ambassadors of good will and fostering understanding between militaries and nations.

As our Navy, our nation, and the world, face the future, I know we can count on the Navy Medicine team and our global partners to support them with world-class operationally relevant health and medical research.

As I reflect on my trip, I am repeatedly inspired by the teamwork and the unselfish passion that I observed. Navy Medicine... your presence matters! Thank you for what you do to support our mission. I am so proud and humbled to serve as your surgeon general.



Vice Adm. Matthew L. Nathan, U.S. Navy surgeon general, (back row four in from right) met with U.S. Naval Medical Research Unit 2 PP staff in Kampong Cham, Cambodia. (Photo by Capt. Dora Lockwood)



Greetings from the NMRC Ombudsman

April is the month of the military child. Since I neither grew up as a military kid nor have any children yet of my own, I thought I'd have my sister-in-law Diama share her story. I hope her words give encouragement and hope that our military children can be resilient and grow to appreciate the experiences of the Navy as long as we give them the courage to do so.

Diama's Story

"Looking back, growing up a "military brat" was one of the greatest gifts my parents could've given me. My dad enlisted in 1973, a very young bean pole of a guy from the Bay area, and retired as Chief Petty Officer in 1995. After several tours abroad, he met my mother in Edinburgh, Scotland in 1976 during a stint in Edzell (now closed).

They were married in 1978 and I was born in 1979 in Dundee, Scotland. In the first ten years of my life we were stationed in Washington D.C.; Edzell, Scotland (two tours); Rota, Spain; and finally landed in Tulsa, Okla. Life abroad as a military child was an education in itself and really forced me to have the ability to make friends anywhere. In Spain, I went to the DOD preschool and we lived on the base. On the weekends, we'd drive to the beaches, visit airshows and local towns to eat paella and ice cream. My most vivid memory of Spain was the apartment complex we lived in before we moved into base housing. One day a week, we would push butane tanks to our apartment for cooking. We'd pass the bull fighting arena and I can still remember the roar of the crowds, the smell of the city, and "patata fritas." Scotland was a Harry Potter book come to life for a kid of my age. My parents chose to send me to the local school in Brechin. My school building was hundreds of years of old and I believe some of the structures in Brechin may have been close to a 1,000. Old had a different meaning there. I'm really proud to have been raised by the Navy. One of my most poignant memories was being a little kid watching dad's ship come home. While it had its challenges, the Navy has shown me that there's a bigger world out there and I choose to embrace it."

Diama Norris